External Engineering Spec

For

DPH-400S Series IP Phones

Model Name:

D-link DPH-400S / 400SE / 400SEDM

Version: 1.0

2007/08/04

By: Olivia Lo / D-Link / Product Planning

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DPH-400S Series IP Phone : Revision History

Version	Revised Date	Person Name	Content Revised
1.0	2007/08/04	Olivia Lo	Initial Release

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1.0 Product Introduction

DPH-400S series IP Phones are mainly designed for general office users (from VSE, SOHO to SMB) in VoIP communication. With sophisticated and elegant design, this platform has high performance and can offer versatile features and specifications to meet different environment requirements. It can be installed on LAN /DSL/Cable network environment and registered to SIP registrar Servers(), soft switch(es), IP-PBX(s), or IMS-based system and let SIP-enabled terminals to communicate with. Beyond this, user's PC can be connected to this phone instead of LAN directly.

The phone comes with a plastic Housing and some accessories, including handset, handset cord, keypad, keys and wall-mounting kit. A graphic LCD display on the panel provides direct visual interface with user. User can use keypad/LCD or Web browser to configure this phone.

2.0 Appearance and User Interface Layout

2.1 Key and LED layout

Keys: Dial pad 12 keys
Volume 2 keys
Line keys : 4
Fixed functional keys : 11 keys
Soft keys: 4
Navigator keys: 5
EDM keys: 24

LEDs: Speaker x 1
Mute x 1
Headset x 1
Line Keys (1,2,3,4) x 4
MWI x 1
LAN port LED x 1
PC port LED x 1

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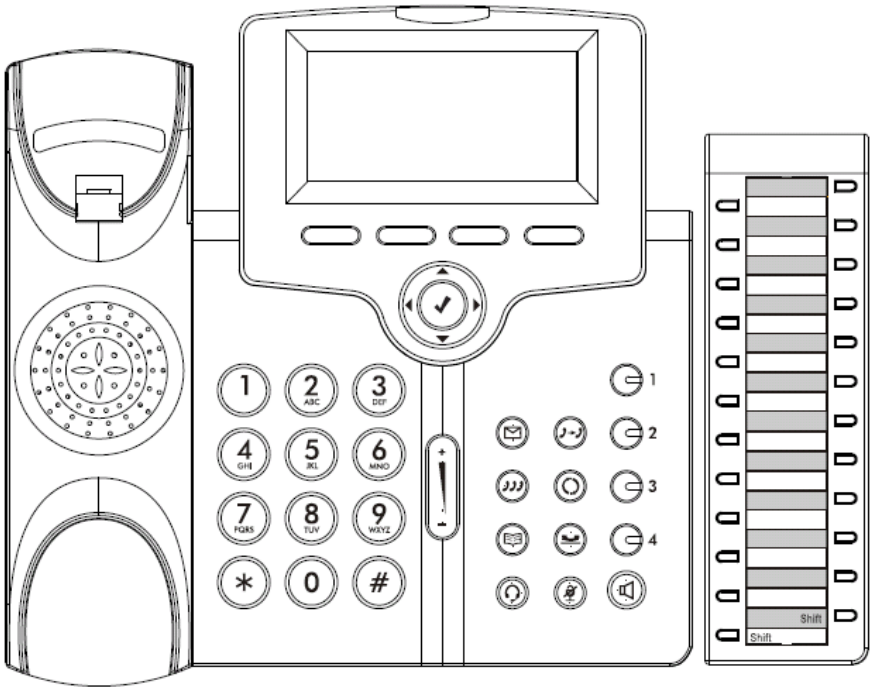

2.2 The Layout of I/O Ports

Reset button: to return to system default setting
LAN Port: to connect to 10/100Mbps Ethernet (toward Internet)
PC Port: to connect to 10/100Mbps Ethernet (toward a local PC)
5V DC IN Jack : to connect to local power with a switching power adaptor.
PA/PoE switch : to switch to a proper power source
Engineering Service Port: NOT used by end user(for Vendor only)
EDM Port: to connect to an external DPH-400SEDM module (option)
Handset Hook switch: for hang on/off control on handset cradle
Handset Jack: to connect with a handset
Headset Jack: to connect with RJ-9 4-pin headset

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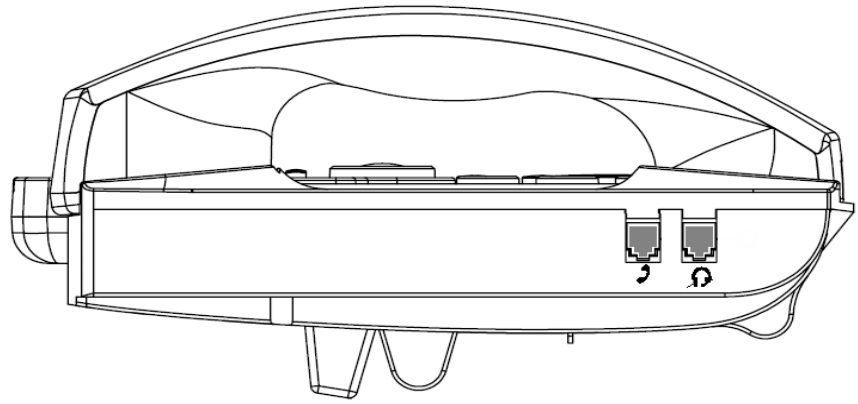

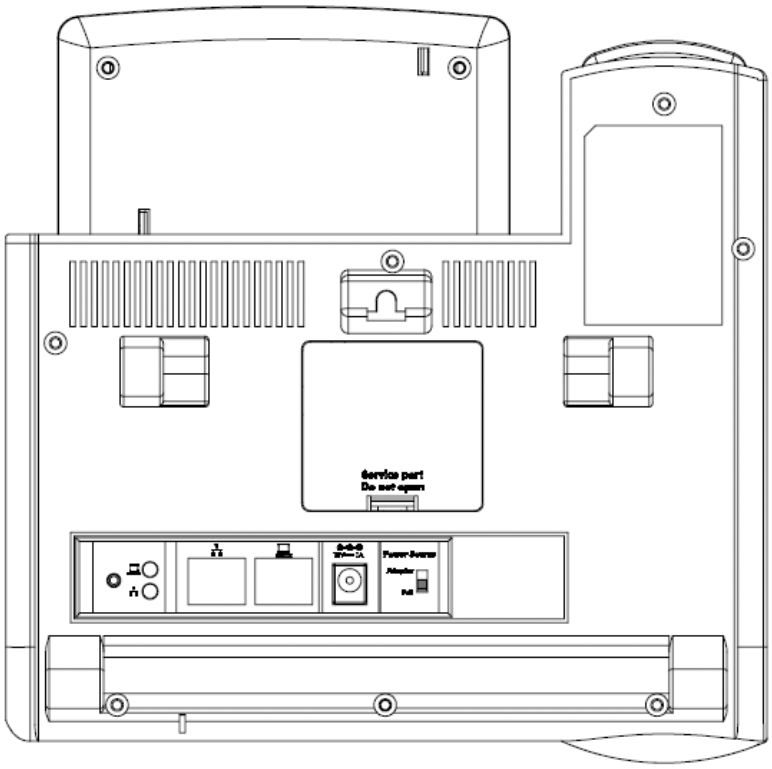

3.0 Hardware & Physical Specifications

Hardware:

Model	Description
DPH-400S	Standard SIP phone with Power Adaptor support only
DPH-400SE	With both Power Adaptor and PoE support Complaint to the standard: IEEE802.3af PoE function
DPH-400SEDM	Optional Extended Dial Module for speed dial,

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	abbreviated code, programmable features assignment use.
Key Components	**Description**
CPU	Broadcom BCM1113
DSP	ZSP processor inside BCM1113
SDRAM	16MB
Flash	4MB
Port Name	**Functions**
LAN	1 x 10/100 BaseT ports RJ45 Compliant to following standards: 1. IEEE 802.3/802.3u 2. Support Full-Duplex operations 3. IEEE802.3af PoE function (option)
PC	1 x 10/100 BaseT ports Compliant to following standards: 1. IEEE 802.3 2. Support Full-Duplex operations

Physical :

Model	**Physical Data**
Dimension	DPH-400S & DPH-400SE: 211mm x 145mm x 195mm DPH-400SEDM: 50 mm x 162mm x 56mm
Net Weight	DPH-400S Net Weight: 1.00 Kg DPH-400SE Net Weight: 1.05 Kg DPH-400SEDM Net Weight: 120g
Power Adaptor	AC-DC Switching Power switching Wall-Mount type Input: 100V~ 240VAC Output: 5V / 2000mA Max. Watt: 10Watt.
Power Consumption	Typical: 3.36 Watt (without DPH-400SEDM) Max.: 4.62 Watt with DPH-400SEDM
Temperature	Operating: 5□ to 40□ Storage: 5% to 95% -20□ to 65□
Related Humidity	Operating: 10% to 90 % (no-condensing) Storage: 5% to 95% (non-condensing)

4.0 Software Specifications

Software Components:

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Part Item Name	Description
Operating System	WindRiver VxWorks
SIP Stack	RadVision SIP stack
Software Platform	Broadcom BSP
Software Requirement	**Description**
Browser for Web of Phone	Microsoft Windows IE, or PC-based general web browser
Auto Provisioning Server	General compatible TFTP or FTP Server Software

Software Specifications:

Main Parts	Specification Details

■ **Keypad Features**

- □ Volume Control for Ringer, Handset and Speaker
- □ 2 Dial(CCITT) Keypad
- □ Speakerphone
- □ Mute
- □ Headset
- □ Redial
- □ Hold
- □ Call Transfer
- □ Call Conference
- □ Message Retrieval (MWI)
- □ Phonebook
- □ Soft keys
- □ Navigator Keys
- □ Multiple Like Keys
- □ EDM extend module for speed dial abbreviated code, programmable features.

■ **Phone Features**

- □ Caller ID display (Incoming call & CWI)
- □ Call log: 30 Missed Calls, 30 Answered Calls, 30 Dialed Calls
- □ Phone book (up to 100 contact names and phone number)
- □ Day/Time display
- □ Call timer display
- □ 10 Selective Ring tones
- □ 10 Speed dial number
- □ Incoming call Indicator
- □ User / Admin Password control for Configuration

■ **Voice Codec**

- □ G.711a/u (64k bps)

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- G.726
- G.729A/B(8 k bps) (*Optional)
- G.723.1 (*Optional)
- BroadVoice16/32 (*Optional)

Advance Voice Quality Feature

- Silence Suppression
- Acoustic Echo Cancellation (G.167)
- Voice Activation Detection(VAD)
- Comfort Noise Generation
- Dynamic Jitter Buffer
- DTMF Transmitter(SIP info, Transparent, RTC 2833 relay)
- Packet Lost Concealment (PLC)

Signal, Media & Network Protocols

- SIP RFC 3261
- SDP RFC 3266
- RTP/RTCP
- IP address: DHCP, Static IP and PPPoE
- STUN (for NAT traversal)
- SNTP
- DNS

Supplementary Call Feature

- Call Hold
- Call Transfer (Blind and Attend Transfer)
- Call Forward (Busy, No answer, Unconditional)
- Call Waiting
- Call Waiting Indication
- Three Way Conferences
- Message Waiting Indication
- Do Not Disturb
- Auto Answer

Network Capability

- QoS: IEEE 802.1Q & IEEE 802.1p Compliant
- DiffServ (DSCP)
- Full range VLAN ID Support,
- Class of Service Support by VLAN Tag

User Interface and Network Management

- LCD/Keypad UI in English version
- HTTP(WEB) UI in English version
- SNMP V2
- FTP/TFTP(Trivial File Transfer Protocol) for Firmware remote update

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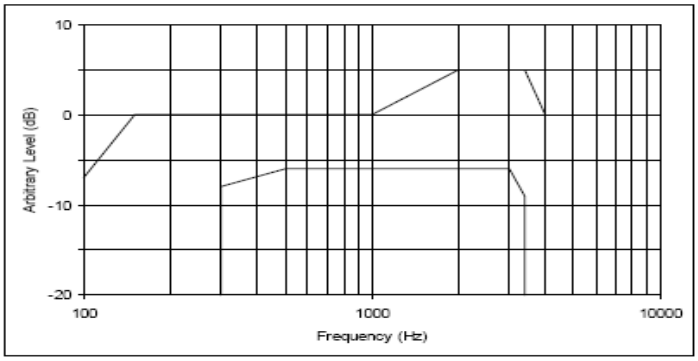
- APS auto-provisioning for firmware and profile upgrade
- Emergency upgrade if firmware corrupted

5.0 Audio Platform Specifications

To be compliant to the Audio standard: TIA/EIA -810-A.

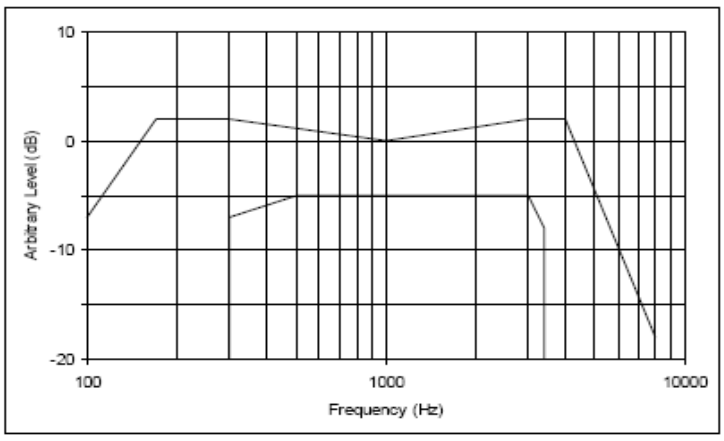
- ***Send Frequency Response:***
  The send frequency response shall be below the upper limit and above the lower limit is shown in Figure below.

Figure 4 – Handset Send Frequency Response Mask



- ***Receive Frequency Response***
  The receive frequency response shall be below the upper limit and above the lower limit is shown in Figure below.

Figure 6 – Handset Receive Frequency Response Mask



- ***Send Loudness Rating (SLR):*** 8 dB±4.0 dB.
- ***Receive Loudness Rating (RLR):*** 2 dB ±4.0 dB.
- ***Talker Side-tone masking rating (STMR):*** 18 dB ± 6 dB

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- ***Send Noise:*** less than -68 dB.
- ***Send Single Frequency Interference:*** less than -78 dB.
- ***Receive Noise:*** less than 38 dB.
- ***Receive Single Frequency Interference:***
  10 dB quieter than the A-weighted broadband noise floor.

6.0 Certifications/Test Reports Requirement

EMC/RF Certificates and Test Reports

EMC Test Report	Class A	Class B	Remarks
CE Report (EN55022/55024)		V	
FCC Report (FCC CFR 47, Part 15B/ ICES-003)		V	
RoHS			
WEEE			

Safety Certificates and Test Reports

Certifications	Standards	Remarks

7.0 Package Contents & Weighting

Model	Content Description
DPH-400S	1 x IP phone main set 1 x Handset Cord 1 x Handset 1 x Quick Install Guide (paper printed) 1 x CD-ROM 1 x 1.5m Ethernet CAT5 Cable 1 x Wall-mount kit pack (Screws) 1 x Switching power adaptor (optional for different country/area) 1 x Gift box Unit Packing Weight: 1.65Kg Size of Gift box: 367mm x 117mm x 228mm The number of unit per carton: 6pcs Carton Packing Weight: 10.9Kg Size of Carton : 51 x 38 x 30 cm^3

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DPH-400SE	1 x IP phone main set 1 x Handset Cord 1 x Handset 1 x Quick Install Guide (paper printed) 1 x CD-ROM 1 x 1.5m Ethernet CAT5 Cable 1 x Wall-mount kit pack (Screws) 1 x Switching power adaptor (optional for different country/area) 1 x Gift box Unit Packing Weight: 1.70Kg Size of Gift box: 367mm x 117mm x 228mm The number of unit per carton: 6pcs Carton Packing Weight: 11.2Kg Size of Carton : 51 x 38 x 30 cm^3
DPH-400SEDM	1 x EDM set 1 x Screw pack (for fastening to phone) 1 x Gift box Unit Packing Weight: 200g Size of Gift box: 170 mm x 65 mm x 44 mm The number of unit per carton: 50 pcs Carton Packing Weight: 11.0Kg Size of Carton :

8.0 Interoperability List Reference

The interoperability test below shows that the DPH-400S Series IP phones can work properly with many industry commercial SIP-based system and devices for basic and main features if they are committed to the SIP standards. During the test, the VoIP service performance and voice quality have been monitored, too. In overall, this IP phones can perform good enough and acceptable for the application of enterprise basic class.

SIP Phones

Companies	Product
D-Link IP Phone	DPH-140S, DPH-541, DPH-540,
Cisco SIP Phone	7960, 7940, 7910,
Polycomm SIP Phone	SoundPoint IP 300

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TECOM SIP Phone	IP2007, IP2008, IP 2009, IP2006, IP2005, IP2004
TECOM Mobile phones	DMP7510, WP2050, IP2050
SNOM SIP Phone	Model 360, 370, 320, 300
Thomson	ST2030
France Telecom R&D	eConf SIP
Institute of Information Industry	III SIP Stack
Sharp Corporation	e-Com SIP
ST Microelectronics	Stradivarius SIP phone
Texas Instruments (Telogy Networks)	IP Phone
Mitel	SIP Phone
GradndStream	SIP Phone: GXP2000 and the GXP2020; BT101, BT102, BT200.
Xten Soft phone	X-Lite
Microsoft Soft phone	MSN Messenger V5.1
Windows XP messenger	(version 4.7 Windows RTC/1.0)
Vovida-SIP-SoftPhone	Ubiquity Helmsman SIP UA V.3.0.6
Vovida Soft phone	SIPset
Pingtel SIP phone	xpressa
Siemens SIP phone	optiPoint 500
Siemens SCS-Client	(V1.0 Beta 36 SCS/v3.1.12.33)

Product - SIP Gateway

Companies	Product
D-link	DIV-140, DVG-1402S, DVG-G1402S, DVG-2001S,
Cisco Trunk Gateway	AS5300 / 5350 /5400
Cisco small SIP Gateway	ATA-186/188 v2.16.1 ata18x (030709a)
TECOM ATA (Router)	GW1000/GW2000, GR1000, GR2000, GR100, GR200, GW101, GW111
SXD small Gateway	ATA
Quimtun SIP Gateway	Tenor AS
RADVISION Inc.	SIP Gateway
Texas Instruments (Telogy Networks)	GG Gateway
Vonage Motorola 2-port Gateway	SIP Gateway
Linksys	PAR2 Gateway
Grandstream	GXW410x, GGXW400x Handytone: 386, 486, 502, 503

SIP Proxy

Companies	Product

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D-Link IPPBX System	DVX-1000, DVX-2000MS, DVX-4010
TECOM	IG6000, IPX4000
Broadsoft Softswitch	BroadWorks R13.0
Cisco	SIP Call Manager
Digium	Asterisk SIP Server
Sylantro	Spice Softswitch
Comverse (NetCentrex)	Softswitch
Briadvox	Softswitch
HuaWei	Softswitch
Nortel Softswitch	Succession MCS 5200
Vonage	VoIP service
OKI IP-PBX	IPstage IP-PBX
ipTel.org SIP Server	SIP Express Route
Vovida SIP Server	VOCAL
RadVision	ProLab SIP Server
PartySIP	SIP Server
OnDo	SIP Server
Hotsip	Sapphire: proxy Server
Free World Dialup	FWD Proxy Server
Fusion	Proxy Server
Polycomm	SIPxchange: SIP Soft switch
Radvision Prolab	SIP Server
Ubiquity	Sip Application Server
Alcatel	SIP Proxy
NexTone Communications, Inc.	MSW Proxy
Vertical	IPPBX
Tadiran	Corel IPPBX
Ridgeway Systems & Software	SIP Proxy

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